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CHANGES IN FARM ORGANIZATION AND FARM PRACTICE AS SHOWN BY A STUDY OF THE BUSINESS SIDE OF FARMING IN SEVERAL SECTIONS OF THE COUNTRY.

H. M. DIXON,

FARM MANAGEMENT AND FARM ECONOMICS, WASHINGTON, D. C.

In order to determine to what degree farms vary in efficiency of operation owing to differences in farm organization and farm practice it is necessary to make a study of the business of many farms. Each group under observation should be representative of an important area or of a well-defined type of farming. The data for analyzing the farmer's business are obtained in part through the coöperation of farmers who keep accounts and of others who are in a position to give authentic data regarding the business of the year. Where accounts are kept it is a comparatively easy matter to summarize them at the end of each year. However, it is not possible in most areas to find a sufficient number of farmers who keep accounts to make the results representative of the many conditions that prevail. To aid in this connection the survey method of research was inaugurated for the purpose of securing detailed estimates of the business of each farmer within a given area. Farmers who keep partial or complete records may give these data from their books, while others make their estimates through the aid of check stubs, elevator records, milk checks, etc. Although few farmers keep full accounts, practically all of them can supply the details necessary for an analysis of the business. Those who do not keep books invariably have some method of recording the business transactions for their own guidance from year to year.

Unlike the grocery store or other lines of business where the transactions occur in small amounts and where the turnover of the money invested runs to several times a year, the farmer receives his returns in relatively large amounts, which can easily be kept in mind, and he usually has little difficulty in checking them up for comparative purposes. By obtaining these data from many farms in a given region a more extensive classification can be made than would be possible otherwise, and the value of the information obtained is enhanced accordingly. To start with, the average conditions of the area are made available for a given time. With this information as a basis, the extent to which farms vary from the average in any particular, the effect of this variation upon profits, and the factors of efficiency, can be determined. The average, therefore, serves as the yardstick to measure more intelligently the opportunities or possibilities afforded a given person with a given amount of funds, experience and training. Likewise comparisons may be made of the average with any given group of farms, such as the best organized farms or the poorest organized farms, and the effect of the variation in organization or farm practice upon returns. For instance, there we set out for comparison the inefficient farms, the farms with business of different sizes, with more and better live stock than the average, more and better crops, greater diversity, better utilization of labor, better rotations, and with variations in systems of organization, in education or practical experience, the age of the farmer, etc. Thus far, however, these studies have not been undertaken upon large enough scale or for a long enough term of years to make possible the determination of the effect of many of the factors mentioned above. All of the factors are at work upon each farm, but not with equal weight in each instance.

In order to study many of these problems more intensively, it will be necessary to obtain a large number of records representing the farms of a given area. The analysis of the business of one farm for a single year has a value, but the analyses of ten farms, one hundred farms or five hundred farms has a greater value, especially in respect to bringing to light the relative effect upon good farm organization, of the many interrelated factors. Thus, too, the study of farms for one year is of value, but a repetition of the study in the same area for two, four or six years has a correspondingly greater value. The mistake has sometimes been made of overestimating the uses and values of a given study. The leading difficulty, however, in most studies of the past has been the lack of funds available for these

studies, but the undertaking of future studies will doubtless be more with the object of making each investigation comprehensive enough to make possible the interpretation of elements in addition to the principal ones which have received attention thus far.

Furthermore, there are certain problems in farm organization that require a number of years of careful study in the same areas. Prominent among these is the problem of soil fertility maintenance. By carrying the study over a series of years data are made available regarding the effect of crop rotations upon yields, the advantages and disadvantages of live stock versus crop farming, the crop yields returned on owner farms and tenant farms, and various other points in relation to their effect upon success in farming. It is the writer's opinion that the time is not far distant when all research departments dealing with the practical side of farm management investigations will have such studies in operation to furnish the same sort of background to their work as does field work to that of the agronomist or feed-lot experiments to that of the animal husbandry man. The Office of Farm Management and Farm Economics is conducting a few such studies over a period of years, most of them being in coöperation with State agricultural experiment stations or colleges. The departments of farm management in New York, Kansas, Montana, Ohio and Georgia are also conducting such studies.

I shall not attempt here any comprehensive analysis of the data from each area discussed, but shall point out, by a brief reference to each of the various areas, some of the uses to which such data may be applied.

Washington County, Ohio.—In Washington County, Ohio, a study has been made of the business of twenty-five farms for a period of eight years. This work is bringing to light some of the effects upon farm organization of a change from sheep farming to a type involving the keeping of more cattle and more hogs. Valuable comparisons are made possible, such as that of the yields returned by the farms selling crops direct with those feeding crops to live stock and obtaining more manure, that as to following a definite rotation, plowing under green manure crops, etc. Pre-war returns can be compared with farm incomes during the war and after the war. The average labor income for the period before the war was $153 and for the war period $441. The percent return on capital for the first period was 2.8 and for the latter period 6.6.

Clinton County, Indiana.—In Clinton County, Indiana, records from 100 farms have been obtained for eight consecutive years. This

study was first made in 1910 and, beginning with 1913, has been repeated for each succeeding year. In addition to showing the effect of production, prices and other factors upon farm income, labor income and return on capital from year to year, the study has provided additional facts concerning many important economic problems in farming. We have yields over the eight-year period on farms operated by owners, share-rent tenants and cash-rent tenants. We have the same information for crop farms and live-stock farms, operated with and without a definite three- or four-year rotation, etc. Throughout this period there has been a noticeable increase in corn acreage and a decrease in small grains and hay. Comparing the first two years of the study, 1910 and 1913, with the last two, the corn area increased 22 per cent, small grains decreased 5 per cent, and hay decreased 15 per cent.

Another important result of the study is in connection with the introduction of tractors and other labor-saving machinery upon these farms. Between 1916 and 1919 ten farmers purchased tractors. Three of these replaced the first tractor after three years' wear with a new one. By having the data regarding the organization and operation of these farms before and after purchasing the tractor the changes and their effects can be determined. In addition, a comparison of costs and returns upon these farms with similar farms not equipped with the tractor may also be made. About 3 per cent of the tenants in this area became owners within the area each year. The eight-year average labor income of owners was $438, owners additional $658, tenants $1,004. The returns to landlords averaged 4.2 per cent.

Frederick County, Virginia.—In Frederick County, Virginia, an area representative of the Shenandoah Valley district, a study of 150 farms has been in progress during the past five years. The farms in this region divide themselves into three more or less distinct types. These are (1) the general crop and live-stock farm as found generally through the eastern districts, (2) the general farm with a small area devoted to fruit, and (3) the orchard farm where practically the entire income is obtained from fruit, principally apples. The orchard farms require by far the greatest amount of capital, and also return the largest profit over the period as a whole, although the income from year to year shows a wide range. There is quite a wide variation in cultural practices and care of these orchards, and this is closely associated with the returns. The orchard enterprise is the one showing the greatest development in this area. Over the five-year period

11 per cent of the general, 17 per cent of the general with fruit, and 32 per cent of the orchard farms have been equipped with tractors. The five-year average labor income of the general farms was $235, of the general with fruit $618, and of the orchard farms $2,358.

Dane County, Wisconsin.—In Dane County, Wisconsin, a study of sixty farms over a five-year period showed an increase in number of cows per farm and in production per cow and a decrease in hogs. In 1913 there was an average of 8.7 cows per man on these farms, and in 1917 there were 9.8 cows per man. There was an average of 44 acres of crops per man in 1913 and 45 in 1917. No milking machines were used in 1913, but in 1917 four farms were equipped with milking machines. Of the four farms purchasing milking machines, one increased the herd from 19 to 20 cows, another from 22 to 26, another from 37 to 40, and the other from 37 to 42 the first year. Twelve farms had silos at the beginning of the study and twelve more put up silos during the period. Nine barns, one house and a number of other smaller buildings were put up new on the sixty farms over the five-year period. A list of the more important items of equipment purchased on these farms for this period follows: 23 wagons, 18 corn binders, 18 2-horse cultivators, 17 grain binders, 17 side delivery rakes, 16 manure spreaders, 16 gas engines, 13 hay loaders, 11 mowers, 10 sulky and gang plows, 12 2-horse sets of harness, 10 corn planters, 8 grain drills, 5 ensilage cutters, 3 corn shredders, 3 tractors, besides buggies, harrows, rollers and other small equipment.

Sumter County, Georgia.—A survey of over 500 farms was made in Sumter County, Georgia, for 1913, and repeated for 1918. Among the more marked changes as shown by a comparison of the data pertaining to these two periods the following may be mentioned: There was a reduction in the cotton acreage approximating one-third and an increase of one-third in the corn acreage, thus making the area devoted to these two crops about equal in 1918. An increase was apparent in the wheat crop, which was grown on only the occasional farm in 1913, but on about two-thirds of the farms in 1918. About one-third of the farms in 1918 produced more of this crop than was required for family use, thus leaving a surplus for sale. The peanut took a place as an important cash crop in the five-year period. The velvet bean was introduced, usually interplanted with corn and utilized largely as a feed crop. A noticeable increase was apparent in the production of feed crops, thus reducing expense for purchased feeds. Live-stock production was increased, particularly hogs. Lighter application of fertilizer was made on cotton as well as other crops.

The acreage of legumes was increased. These changes occurred to the greatest extent on the farms operated by white owners. The colored farmers stuck the closest to cotton. The average cost of producing cotton in 1913 was 11.8 cents per pound of lint and in 1918 23.2 cents per pound.

Palouse Region, Idaho and Washington.—A study of 246 farms in the Palouse region of Idaho and Washington was made for the year 1914 and repeated for the year 1919. At this latter time sufficient additional data were obtained to calculate the cost of growing all the leading crops.

A comparison of the data for the two years shows that 1919 was a much better year for the farmer than 1914. The average farm income for 1919 was twice as large and the average labor income nearly five times as large as for 1914. The changes in farm organization that have occurred in the five-year interval are also striking. For example, comparing the two periods, the enterprise of wheat and peas had been expanded to a much greater extent than those of oats and live stock. The changes are also shown that have taken place in farm practice and their effect on costs and profits, in the relative acreage of winter and spring wheat, and the acreage of peas and beans raised in place of summer fallow. In 1919 the yield of winter wheat after summer fallow was 32 bushels per acre and the cost of production $1.75 a bushel, while the yield after the peas was 36 bushels per acre and the cost of production only $1.18 per bushel.

Changes have occurred in the practice of seeding grain crops and in the use of improved harvesting machinery.

Hillsboro County, Florida.—A farm business analysis study in the trucking area of Hillsboro County, Florida, for the years 1917 to 1920 shows that no definite crop rotations are followed. Poor returns from a truck crop one year results too often in a reduction in the acreage of that crop the following year, and good returns often result in an increased acreage the following year. The most consistent incomes are realized, however, by those who follow a more definite program of crops from year to year. Strawberries have consistently shown the best returns per acre. The acreages in velvet beans, cowpeas and peanuts have been increasing. The piney-woods hogs and range cattle are rapidly being replaced by better grades of stock and this is resulting in a more satisfactory return from these sources.

Polk County, Florida.—In the citrus fruit area of Polk County, Florida, the grapefruit plantings are on the decline in relation to the plantings of oranges. Tangerine plantings are markedly on the in-

crease. Groves receiving personal supervision of owners get more and better attention and return better yields than those dependent wholly on caretakers. The yields and incomes on citrus farms vary directly with the cultural practices in use on the various farms. Good citrus soils are sandy and these are usually found deficient in plant food, and yields of fruit are materially affected by the quantity of fertilizer applied, method of application and the amount of care in cultivation, pruning, spraying, etc.

The location of a grove relative to good air drainage and lake protection is important in lessening the probabilities of damage by frost. Importance of this is shown in two of the four years studied.

Results Made Available by Such Studies.—There is a wide variation in the returns from farm to farm. In general the data show that about one-fifth of the farmers obtain 60 per cent of the total labor income, in addition to food, fuel and shelter, while the poorest one-fifth receives no labor income in addition to farm-furnished supplies.

The studies which have been carried over the period of rising prices showed that the advance in prices tended toward more specialization upon the leading enterprise. In the Wisconsin area they increased the dairy herd; in Indiana they increased the corn area and hogs; in Ohio, poultry and cattle, but with the decline and uncertainty of future prices they now tend toward a greater diversity of revenue-producing enterprises.

Permanent Work in Selected Areas Essential.

To be the most effective, many farm organization studies should be placed on a permanent basis. The various research institutions that have performed the most constructive work within the past twenty years are those that settled upon definite lines of study and then carried these through a series of years, thereby determining certain well-defined principles. It is the same way with the question of farm organization. Important results have so far been accomplished in establishing fundamental principles as well as establishing methods of study. We must study the factors affecting farm organization, not only for one year, but for periods of successive years. Then the seasoned facts regarding the economic practices and standards of operation that influence the returns will be available as a sound basis for constructive work.

FARM TENANCY IN 1920.

B. H. HIBBARD,

COLLEGE OF AGRICULTURE, MADISON, WISCONSIN.

Studies made on the basis of the data furnished by the thirteenth census revealed the fact that the tenancy situation in the United States was far from simple. Prior to that time there had been an increase in tenancy which, while by no means uniform, was almost universal. In 1910 it was to be seen that an increase was by no means to be taken for granted for all States. Indeed, the whole group of States known as the North Atlantic States, and the north four of the South Atlantic group, a solid block of thirteen States, showed a positive decline in tenancy. Nor was this all. In the hilly and broken portions throughout the whole Appalachian Range, and spreading across to the north side of the Ohic River into the somewhat similar regions of Ohio, Indiana and Illinois, tenancy showed a downward trend. The same was true of the Ozark region and of the newly developed districts of the Lake States and the Northwest. The case may perhaps be more simply stated from the opposite point of view. Tenancy increased primarily in two districts, the corn belt and the cotton belt, with a lesser upward tendency in two or three of the leading wheat areas.

It might almost be said that outside of the corn belt and the cotton belt that tenancy has not assumed alarming proportions. The only real discrepancy in the statement would be the failure to include a part of the tobacco district in which tenancy is high, and certain wheat areas in which it is growing, perhaps alarmingly, though no such proportions have yet been reached as in the corn and cotton districts.

The most outstanding correlation between tenancy and other phenomena is found in connection with the selling value of land, the type of farming and the qualities of the farmers themselves. The emphasis must, however, be placed on the first two out of the three criteria, since types of farmers seem to give way to the character of the agriculture best adapted to the section, with the result that black or white, native or foreign, Teuton or Anglo-Saxon, are alike, though possibly not equally, swept into the current wherever they undertake the conquest of land ownership within these areas where tenancy seems to be able to maintain its stronghold. And while geographically the position

in which tenancy is so prevalent may occupy but a third, or more likely a quarter, of the United States, the welfare of the country is dependent upon this area to a degree entirely beyond its proportional size.

With respect to farm values it is clear that ownership is feasible in the case of relatively low values, and much more difficult in case of high values. Thus it is beyond question that tenants will be few and owners many where the land is worth $20 or $40 or $60 an acre, while tenants will be plentiful and owners correspondingly fewer where values are $80 or $150 or $400 an acre. This might not be true were it not for the fact that there is such a strong tendency to conform to something approaching an economic holding in the matter of size. Just why the average size of farms in southern Illinois is below that of the east-central portion of the State we can not here take time to discuss, but such is the case. Likewise in southeastern Iowa the farms are much smaller than in western Iowa. The value of land per acre is much lower in southern Illinois than in the central part of the State, and much lower in southeastern Iowa than in the western part of the State. In the cheaper portions of the States the value of a farm with its lower price per acre and its fewer acres is not to exceed half the figure representing the values in the better portions of the States respectively. Tenancy shows the same relationship, twenty to thirty-five percent in the regions of cheap farms, and forty to seventy percent in the regions of high-priced farms.

In vain does a non-agricultural reformer protest that a much smaller farm in the better districts would suffice. Neither farm owner, tenant nor landlord will accept the view, and in spite of all doctrines the practice demands a farm which corresponds to the ability of the manager, and in the level, uniform, fertile acres the manager proves his point and controls the larger unit. But the buyer is slower in making the purchase amounting to $20,000, $40,000 or $80,000 than in buying the farm of a fourth these values, even though the relative returns may, after the purchase be consummated, prove the more attractive on the bigger and better farms. These facts were evident ten years ago and are emphasized in the returns of the present census.

There are many vital facts involved in the tenant problem not revealed by the census. Certain of these together with a few theories have been presented during the ten years just past. For instance, we have learned that in at least a few districts the relationship between landlord and tenant is closer than had been imagined. In four neighborhoods of Wisconsin, comprising from 150 to 500 families each, one third to one half of the tenants are relatives of the landlords. For

example, in a group of 500 families there are 150, or 30 percent, who are classed as tenants. Of these nearly one half are related to the landlords. Thus the proportion of real tenants who bargain with the farm owner on a cold business basis is reduced from 30 percent to 15 percent. It follows that the significance of tenancy from the social point of view is quite different, these facts considered, from what it had formerly seemed before the analysis was made. In all reason this percentage of family relationship would be much lower where tenancy is more prevalent. The Census Bureau has information on this point which it is hoped will be made available.

Another interesting sidelight respecting tenancy was brought out in a Wisconsin study involving three hundred farmers, about two thirds of whom own the farms they operate, concerning the source of the money borrowed for making the first farm purchase. Of the money needed by this group for this purpose 83 percent was furnished locally by relatives and farmers. While such a condition holds the proportion of tenants is not likely to run high, nor the credit question to assume ominous aspects. But this condition was found in a district of surplus wealth. Money is continually going out of the neighborhood, hence the ease with which part of it is made to do local service. If so much can happen without organization, how much more might credit be made to obviate tenancy through organization? It must not, however, be forgotten that too liberal land credit may promote rather than obviate farm tenancy.

Studies by the Office of Farm Management have shown that tenants may, and often do, make more money directly from farm operations than is made by farm owners. This is but an indirect way of stating that land values are in part speculative, and up to date, or at least until recently, the speculator in farm land has been rewarded.

Another line of effort has been made to arrive at a conclusion concerning the most desirable percentage of tenancy. Should, for instance, it be assumed that absence of tenancy amounts to a removal of a rung from the agricultural ladder with consequent difficulty in the ascent from laborer to owner? One is tempted to make a few heterodox remarks concerning the apt and widely accepted expression "agricultural ladder." To begin with, a ladder with but four rungs is short, a sort of step ladder, and an agile climber will manage to mount even though a rung or two should be weak, or altogether wanting. Again, there may be substitute steps. For example, there may be two credit rungs, in place of one representing tenancy and one credit. As a matter of fact, in several counties in Wisconsin, old, well-settled

counties, with fairly high land values, this is the case. Are those who reach the ownership level by climbing up some other way to be held in disesteem? The ladder analogy serves a useful purpose, but, like most analogies, it fails to go on all fours. At all events, we have not arrived at a conclusion as to the ideal proportion of tenancy, yet we agree that some proportion is not of necessity undesirable, though its absence need occasion no alarm.

We must not omit to mention a careful study which has recently appeared in this magazine in which it is shown that in the struggle for economic salvation through farm ownership few can hope to be saved. It is a case where many indeed are called, but few are chosen. The proof seems to be conclusive that the average farmer can not, within an ordinary farming lifetime, pay for a farm. It is much like the case of a certain physicist, who, years ago, when organized baseball was quite new, refuted the popular belief in the pitcher's curves by submitting a proof that a curve could not be thrown. Under the assumptions made by him it could not. The writer of the recent articles, to which reference is made, proves that the farmers of many parts of the United States can not pay for farms in ten, twenty or even thirty years. In justice to the writer of the article in question, it should be said that he is talking about the average farmer. Moreover, it must be said, further, that there is much truth in his conclusions. The difficulty is that the article rather proves too much. It is unquestionably true that in the heart of the corn belt the average farmer starting with nothing and buying a farm on the amortization plan would fail to pay for it. On the other hand, throughout approximately half of the United States the average farmer, or at least the majority of farmers, not only can, but have, during the past twenty years, bought and paid for farms. Yet the author of the articles shows that in Washington County, Ohio, on a twenty-year amortization plan a family will have but $33 a year left for a living, and on a thirty-year basis but $114. The Becky Sharp problem of living on nothing a year must be exemplified a multitude of times according to the author. The census figures reveal a widely different result, though, of course, the conditions assumed in the article are not of necessity those of real life. For example, many farmers are aided through inheritance, while many others accumulate a considerable sum of money as laborers and tenants before buying, thus reducing the required amortization figure. In eight out of the twenty States from which the data are taken ownership is on the up grade. In Ohio, where, by chance, there is a slight increase in tenancy in the county in which the survey was made, should

a group of counties, of which Washington is a logic part, be considered, there has been a decided decline in tenancy during the past twenty years. Not only have farmers bought and paid for land during the recent period of high prices; they did so during the normal times from 1900 to 1910.

Probably it is just as well that farms are high enough in price to prevent the average farmer from buying one with no payment down and getting out of debt in twenty years. Were this the rule, the more efficient ones would soon own at least two farms each, and out of such a group would arise a landed aristocracy. There is no prospect that such a thing can occur, if for no other reason, because the price of land will continually be bid out of their reach—that is to say, no great numbers can buy the second and third farm. The author does well to suggest that probably the most efficient farmers will continue to buy land. Just so, and of these more efficient there are enough to buy the majority of the farms, since there are more boys reared in the country than there are farms for sale during a given period. A process of selection is no doubt taking place.

Out of these various studies and criticisms of the past ten years have come but few remedies or even prescriptions. There have been a few credit laws passed from which some indirect help has been anticipated, but little indeed realized. In Texas a tenant-landlord law was passed ostensibly to regulate the rent charge. Reports are not flattering. In Illinois a legislative committee, after working for some months, reported a program to the last legislature. The main provision of the report, and of the law passed, was the appropriation of money for a tenancy survey. The people of Illinois are to be congratulated.

Rumors had been prevalent for many months past to the effect that the fourteenth census would show a pronounced increase in tenancy. The results bear out the anticipations to a great extent, though not fully.

Looking over the map as it appears with the 1920 tenancy figures available, it is evident that the tendencies which seemed to be under way in 1910 were real and not accidental. For example, a group of States, thirteen in number, in the northeastern part of the country comprising all to the north of North Carolina and east of Ohio have, as during the decade 1900–1910, decreased in tenancy in a decided manner. In the South, a section which had almost without exception shown pronounced increases from period to period, there seems to be a decided slowing down of the rate of increase and a decline in a few pronounced instances. Kentucky, Alabama and Oklahoma have posi-

tively declined, while Tennessee, Georgia and Mississippi repeat the exact figures of 1910. Thus six of the important States of the South appear for the moment to have reached the maximum of tenant proportions. It must be admitted that for several of these States the proportion is so high as to make further increases less probable. For example, in Georgia the percentage is 66.6 and in Mississippi 66.1. Unless land ownership is to disappear, there can be little increase after the two-thirds point in tenancy is passed. Apparently ownership is not rapidly disappearing in the South, even though tenancy seems to predominate. Aside from the States mentioned, Missouri and Nevada show decreases, all other States increases.

Using the geographic divisions made by the Census Bureau, it is found that in three the percentage of tenancy has declined. These are: The New England States, the Middle Atlantic States and the East South Central States. In the West South Central States the percentage of increase was very slight. In the West North Central States the increase was the most pronounced.

The percentages for 1910 and 1920 for the United States and for the divisions follow:

	Percent of All Farms.	
Division or State.	1920.	1910.
United States	38.1	37.0
Geographic Divisions:		
New England	7.4	8.0
Middle Atlantic	20.7	22.3
East North Central	28.1	27.0
West North Central	34.2	30.9
South Atlantic	46.8	45.9
East South Central	49.7	50.7
West South Central	52.9	52.8
Mountain	15.4	10.7
Pacific	20.1	17.2

The increases from 37 percent in 1910 to 38.1 percent in 1920 are not very alarming. The decreases as noted above are positive and rather widespread. Even so the increases are significant. As in the previous decade, the gains are very largely in sections of the country which are particularly significant with respect to the production of the cereals and cotton. Of course, livestock is a major consideration in the corn belt. Two thirds, approximately, of the entire number of tenant farms are in the South, while the North Central States have the bulk of the other third. In other words, the cotton and the corn belts have the tenants. Of course, these two great areas include a large part

of the farms of the country, but it must be remembered that the cotton belt does not cover the South, and the corn belt in area covers hardly half of the North Central district. Within the cotton belt more than half of the farms are rented. In the corn belt the proportion is constantly stretching upward toward the middle line. In all other parts of the country, with minor exceptions, the percentage of tenancy is comparatively low, and for the most part either actually decreasing or increasing at a slow rate.

The kinds of tenancy seem to be undergoing a change, at least for the present. During the earlier decades for which tenancy figures are available it seemed that cash tenancy was destined to displace eventually a great part of the share tenancy. It gained persistently. The 1920 figures show a decided reversal of the former tendency. The cash tenants all counted—that is, including "standing renters"—show a decrease of 30 percent, while the share tenants have increased almost 20 percent. The shift from cash to share is most pronounced in the cotton section and in the western part of the corn belt. The occasion for the change would seem to be the great increase in the prices of farm produce. Few tenants could afford to run the risk of agreeing to pay in cash a rental equivalent to the value of the landlord's usual share of a crop. With cotton at forty cents a pound and corn two dollars a bushel, the cash rent corresponding to half the crop was a figure unprecedented in the history of American farming. The owners of farms are more willing to take a share when prices are high than when they are low. Thus both parties had tangible reasons for making the change. In Iowa and Kansas where cash rents had been quite the popular arrangement, the swing to the other basis was pronounced. Such was the case in the leading cotton States. However, the movement was not confined to these particular districts. It was widespread, so widespread as to permit the statement that it was general. In a few States only was there a gain of cash tenancy as compared with share. The explanation of these exceptions is not to be found in the figures themselves and will require specific study. For instance, cash rent gained relatively in Minnesota and Nebraska, while the reverse was the case in North Dakota and Kansas.

As examples of the pronounced changes taking place in tenancy, Iowa may be noticed as representative of the corn belt and Alabama of the cotton belt. In Iowa there had been for several decades an exception to the general rule of high tenancy figures in connection with high land prices. Another factor intervened. In the northwestern part of the State, due, no doubt, in large measure to the fact that the

settlement was more recent and population not quite so dense, land had been lower in price than to the southeast. At the same time the northwestern quarter of the State was a grain-growing, grain-shipping district. As a result tenancy was about as high as in the district of higher land values. In 1920, due, no doubt, to the high prices of grain and the more ready response of land values to grain than to livestock prices, this quarter of the State shows the most rapid increase in land values for the entire State, even rising to an absolutely higher level. Tenancy thus doubly stimulated rises to the highest level found in the State. The average increase in value of land and buildings for the State was 133 percent. For 26 northwestern counties it was 171 percent. The average value per acre of land and buildings for the State was $227. For the northwestern counties the average is $237. The percentage of tenancy for the State was 37.8 in 1910 and 41.7 in 1920. For the northwestern counties, 26 in number, every one with approximately half the farms rented, the average percentage in 1920 was approximately 54.5. Thus the increase in land values, the possibility of growing a big crop of grain and cashing it in quickly appealed to the buyers of land, and incidentally the real farmers are unable to buy a farm selling at $50,000 until rather late in life. Tenancy therefore increases. In some of the cheaper counties of Iowa, such as are found in the northwestern and the southwestern parts of the State, tenancy is still from 20 to 30 percent. The farms are smaller and much lower in price. As a result the aspiring young farmer buys early and ceases to be a renter.

In Alabama the decrease in tenancy is interesting largely because it is something new and largely unexpected. The change toward fewer tenants is spread widely over the State. In the extreme southeastern portion and in the hilly portions of the north tenancy shows a slight gain. Unlike the most of the Southern States, Alabama shows a decrease in the total number of farms. The information from which this is to be explained is not at hand. The counties showing the increases in tenancy are not those of the highest land values, nor are they the ones with the greatest cotton acreages. The explanation, if it is to be found, will more than likely link itself with the reduction of cotton acreage and quite likely the movement of population due to the high wages of the war period and the years immediately following. Whatever the ultimate explanation may be, it is certain that the increase in tenancy is not necessarily inevitable. At the same time it is equally certain that soil, crop and price conditions may so work together as to induce a growth of tenancy so great as to make it the dominating condition.

ECONOMIC CONDITIONS CAUSING THE TWO-DAY CATTLE MARKET AT CHICAGO AND THE EFFECT OF THE ZONING LAW.

R. H. WILCOX,

FARM MANAGEMENT AND FARM ECONOMICS, WASHINGTON, D. C.

It is now approximately three and one half years since the Food Administration put into effect its zoning order "to establish greater regularity for the movement of live-stock shipments and arrivals at Chicago." By the original order, issued on December 10, 1917, all live-stock producing territory tributary to the Union Stock Yards was divided into two zones; the first to include, roughly speaking, territory lying within 175 miles of the yards; the second zone taking in all territory lying outside the first-zone boundary up to and including shipping points within the thirty-six-hour scheduled runs covering live freight directed toward Chicago. The order was made so that shippers within the first zone could load live stock to arrive at Chicago for Tuesday, Thursday, Friday and Saturday markets, while those in the second zone could only load to arrive at the yards on Monday, Wednesday, Friday and Saturday. Although this original order has not yet been revoked, it has been revised and modified from time to time until now, in the instance of a few of the smaller roads supplying Chicago with live stock, it has ceased to function. However, most of the roads touched by this order are attempting, in so far as they are able, to comply with the system.

Just what were the conditions on the Chicago market prior to the time this zoning went into effect? In the year 1916 over seventy-five percent of the cattle business in this great market was turned on two days of the week, or approximately 375 millions of the 509 million dollars' worth of live-stock tickets changed hands on Mondays and Wednesdays. Now, the transaction of the remaining 125 million dollars' worth of business during the rest of the week was of no small moment; but surely there should be found reasonable cause for a practice which in 1916 drove three times as many cattle over the Chicago scales on Monday and Wednesday as crossed on the four remaining "light days" of the week. And I think as we go into the conditions surrounding the marketing of cattle just before the war we will find that this practice grew out of the adjustments of those agencies con-

nected with the marketing of live stock to the natural forces at work in the cattle industry during the rapid growth of centralized markets since 1885. Let us go back and touch briefly the history of the establishment and development of live-stock markets and carry this history down to the year 1916, dwelling upon some of the natural and economic causes which resulted in the congestion of the Chicago cattle market on Mondays and Wednesdays.

Forces Causing Two-Day Market.

Prior to the 80's, that period in our marketing development marked by the rapid expansion in the use of the refrigerator car, Chicago's chief functions lay in furnishing feed and water to the producer who was speculative enough to chance his year's work and worry to the cattle car between the Chicago yards and the killing sheds of the Atlantic coast, and also in supplying a concentration point where cattle buyers from the canneries of the New England States could assemble and buy thin cattle. In those early times no discrimination, as to days of the week, was made by the ranchman for unloading at the Chicago chutes, for when it came time to move his cattle toward market the big end of his job lay in getting his drove out of the southwestern plains and north to the Missouri Valley shipping points, by trailing them for hundreds of miles through days and nights fraught with many hardships and marked by running battles with bands of outlaws. But as the railroads gradually extended their trackage to the south and west, and with this extension better freight schedules for live stock were offered, the cattleman's problems of moving disappeared, and in their stead grew the practice of letting cattle go in on the days of "strong" demand until the producer came to be blamed by the railroads for demanding Chicago service upon Monday and Wednesday and neglecting to fill schedules upon other days of the week. It was hard for the shipper to disregard Monday and Wednesday conditions when he believed that his offerings were put into a wider field of competition on these days.

And so we are brought to consider the second great force, unconsciously operating to maintain a two-day market—the great body of buying agencies. On all produce markets and exchanges Monday is dubbed the steady to strong day; why so is probably beyond explanation. Under normal conditions in market and mercantile circles, Monday exhibits a freshened start, a possible result of the opportunity afforded by Sunday to think things over. Whatever be the explanation, Monday gradually came to mean a good day to make the yards.

The feeder was not slow to see this when once the experience was realized and Monday found more cattle trying to get into the Chicago yards than could be handled effectively. Hence Tuesday began to see pens filled with left-overs. The spatterings of hard-looking left-overs hurt the Tuesday trade, caused a bearish market all around and taught the shippers to leave Tuesday alone. By Wednesday the "old stuff" was gone and the packers were busy again, at least in comparison to the day before. Tuesday and Thursday gradually lost in favor before the activities of Monday and Wednesday. Order buyers, export buyers, kosher buyers and others learned to wait for Monday and Wednesday. These, early, came to be known as "loading-out" days. Some buyers became inactive the rest of the week, reducing the competition of the market. Conditions had gradually resulted compelling the packers to buy long Monday and Wednesday as advance car reports would indicate light receipts for the days following. Packing plants must be kept busy, and to assure this packers were heavy buyers on the heavy days as a measure of safety.

While the great body of producers at one end and the fraternity of buyers at the other were adjusting themselves to a two-day market, the railroads were experiencing the pressure of economic forces which they felt justified the two-day runs. All the early centralized stock yards were located and fostered by the railroads to fill the increasing needs and purposes of a convenient place to bring together and display visible and possible future live-stock tonnage. The machinery of the live-stock trade was naturally attracted to the market places of the railroads, and buyers, traders, speculators and others began to confine their operations to centralized points maintained by the railroads until there grew to be such a demand for stock at these points that the railroads were no longer confronted with creating demand, but rather with supplying car service for agencies which were now sustaining demand, at the same time requiring speedy and efficient service in order to exist and carry on business.

Dead Freight Has Increased Faster than Live Tonnage.

During the early eighties the railroads had a very difficult job on their hands maintaining loading facilities at strategic points along the trails from the southwest, practically putting themselves into bankruptcy in attempting to render cattle-car service with rates to the east so much better than their competitors that ranchmen would go out of their way to benefit by the service. At the time John B. Sherman managed to get the railroads pulling together and started the old Bull's

Head Market few anticipated Chicago would become the vast railroad center it is today. Prior to the nineties Chicago was not a heavy rail terminal for the products of the mines, forests and factories which lay to the south and west. The cattle car in those days constituted a far more important share of her tonnage. Of all tonnage entering Chicago by rail in 1885 approximately 27 percent was brought in by stock cars; today the fifteen principal railway systems supplying Chicago with animal shipments carry but 5¼ percent of their tonnage as live freight; the products of mines make up 42 percent, manufacture 20 percent, farm products, other than live stock, 16 percent, while lumber and miscellaneous tonnage makes up the balance.

The relative decline in live tonnage entering Chicago has not been due entirely to the exploitation and development of the resources of mines, factories and forests, but has been caused in marked degree by the rapid growth of stock yards along the Missouri valley, where a barrier of markets has been developed which absorbs a great tonnage of live freight that earlier found its way into Chicago. Since 1890 these markets in the Missouri valley, together with those of the Corn Belt States other than Chicago, have increased their receipts four hundred times. Where previously there existed loading stations for cattle bound Chicagoward, today there are maintained a score of packing houses which absorb the live tonnage and produce in its stead those products which use the refrigerator car in their journey eastward to the centers of consumption.

Chicago in her strategic position at the southern extremity of Lake Michigan stands as a sort of flood-gate to catch all streams of commerce in their flow eastward to the principal center of consumption and export. Present conditions in eastward traffic show that all paths of eastbound freight passing the Mississippi and Great Lakes area converge at Chicago, save the one route which leads eastward from the St. Louis territory. Omaha is fed by one stream of commerce leading in from the northwest; Kansas City takes care of three, one leading from the same territory as that tapped by Omaha, a second from the southwest and a third from Texas. Chicago absorbs the combined tonnage of the Kansas City streams after they are assembled into one continuous flow, a second from Omaha, a third from the northwest, a fourth from New Orleans and a fifth from the eastern Gulf States.

Expansion of Track Mileage Necessitates Reducing Light Hauls.

Let us leave the markets at this point and go out along the railways to observe changes in the amount and distribution of live-stock ton-

nage. In the twenty-one States touched by the five leading Chicago live-stock roads there were, in 1875, only 77,000 miles of steam-road trackage over which to operate live-stock schedules; in 1916 there were 154,000 miles. While the tonnage of live stock increased in these twenty-one States during this time, it did not keep pace with the expansion in railroad construction. Taking the animals on farms January 1 in these twenty-one States at each ten-year period beginning with 1875, and considering 20 cattle, 120 sheep and 70 swine as each constituting a single deck, and then by distributing the total single decks of stock on farms over the miles of steam road in operation there is shown to be a decrease from 23.1 decks per mile in 1875 to 17.6 decks in 1915, a decrease of 21.8 per cent in the number of decks of live stock per mile of railroad.

January 1	1875.	1885.	1895.	1905.	1915.
Total single decks per mile	23.1	24.8	20.0	21.2	17.6
Percent of marketed live stock going to Chicago	79.7	60.2	48.5	37.3	29.5
Number of decks per mile for Chicago to draw from	18.4	14.9	9.7	7.9	5.2

Since 1875 there have been stock yards in these twenty-one States that have taken a share of the total decks away from Chicago. In the year 1875, in these twenty-one States, 79.7 percent of the live-stock tonnage put on cars went to Chicago, while in 1915 only 29.5 percent was marketed there, the rest went into the Missouri valley points and other centralized yards in the Corn Belt. That is, of the 17.6 single decks of live stock on farms per mile of railroad January 1, 1915, only 29.5 percent, or 5.2 decks per mile, were left to supply Chicago.

The accompanying chart shows that, until other markets in the middle west began their rapid growth, Chicago's cattle receipts were evenly distributed over the first five days of the week. By 1895 the newly developed outside slaughtering centers were receiving more tonnage in the form of live animals than was Chicago. In 1905 Chicago's share of all live-stock tonnage received at the eight principal markets of the middle west had dropped to about 37 percent, and by 1915 she was receiving but approximately 30 percent. It was during the period from 1890 up to the opening of the war that the railroads were increasing the carrying capacities of both engines and rolling stock to cope with the increase in freight traffic. By 1915, when the cattle car made up but a fraction over five percent of Chicago's tonnage, it became increasingly difficult for the railroads to spread their Chicago live freight over the week and still place and hold this traffic within

their tonnage system. There was a gradual holding back in making up trains for the Chicago divisions until the load volume reached the minimum governed by tonnage orders coming from traffic headquarters. From this practice finally grew the discontinuing of daily live-stock schedules over the small branch or "feeder" lines and the arranging of these pick-up schedules upon days which would insure necessary train-load capacity on trunk lines. As the farmers were already favoring Monday and Wednesday, it was very natural that schedules were arranged so that they could make these markets.

Zoning of Producing Territory Showing Beneficial Effect.

It was with the thought of remedying this two-day, heavy-volume traffic at the Chicago end of the lines that the Food Administration requested the railroads to keep their two-day schedules, but not use the same two days over their whole system. Zones were made at the Kansas City market by drawing imaginary lines out from the market cutting the producing territory into sections. But with the Chicago market, as most of her live-stock traffic comes from the west and southwest, zoning was thought more workable if it divided the short-haul Chicago traffic from the long-haul. The effects of the order were at once apparent. Monday's quota the first year was reduced from 42.4 to 30.0 percent of the weekly receipts, and Wednesday received 14.0 percent where in 1915 her share was 33.4 percent. Tuesday's share was, on the other hand, increased from 10.0 percent to 22.3, and Thursday's and Friday's part were more than doubled.

While the zoning order reduced the fluctuations in receipts and spread them more evenly over the first five days of the week, was it influential in reducing price fluctuations? General price movements are not caused entirely by fluctuations in supply, but are governed fully as much by demand. It is therefore difficult to compare the price fluctuations one year with another without knowledge of general price movements due to demand. During 1919 the cattle market made three general upward and three downward price movements; in 1917, the year before zoning had become effective, there was a general upward movement until September, and then a gradual decline over the last three months of the year. Despite the fact that the price movement made more changes in 1919, a careful study of daily prices shows that there were fully four to five percent more "steady" days in 1919 than in 1917. This would seem to indicate that the distribution of receipts throughout the week had a very beneficial effect in reducing daily fluctuations in prices.

And it would seem that the live-stock producer was not slow in noticing improvements worked by the new order of things for more live tonnage began going toward Chicago. As pointed out above, Chicago's share of live-stock tonnage received at the eight principal middle-western centralized markets had gradually decreased until in 1915 she was receiving but 29.5 percent. In 1918, the first year under the zone order, this percentage jumped to 34.3.

Chicago's Share of Live-Stock Tonnage Marketed at the Eight Principal Middle-Western Yards, Shown in Percentages.

1915.	1916.	1918.	1919.	1920.
29.5	31.2	34.3	32.1	31.0

It would appear, however, that Chicago is beginning to drop back to where she absorbs about 30 percent of the animal tonnage going to market in the middle west. This dropping off is due principally to the sharp decline in the winter feeding of stocker animals in the Corn Belt during 1919 and 1920, when at the same time lack of moisture on the range drove many thousands of cattle and sheep into the Missouri valley markets.

Live-stock producers no longer entertain the belief that allotting their stock to certain days in the week works a hardship upon them, for now no one or two days are better than the others. The railroads are finding it difficult to adhere strictly to the order, but they are finding upon the other hand less delays in unloading at the yards and fewer claims to pay. The Chicago market has been relieved of the two-day market, fluctuations from day to day have been reduced, and Chicago's receipts, if anything, have increased relatively over what might have been looked for under the economic conditions influencing the fattening of live stock in territory tributary to her yards.

STATE PROGRAMS OF WORK IN FARM MANAGEMENT AND FARM ECONOMICS.

NEW YORK.

In 1919 the departments of farm management and rural economy at this institution were combined to form a department of agricultural economics and farm management. Since that time, under the leadership of Dr. G. F. Warren, the work of the department has been expanded considerably. The lines of investigational work in farm management formerly carried on have been continued and beginnings have been made in the study of marketing, transportation and farm finance. The more important investigations now under way are:

1. *Farm Cost Accounting.*—This work was begun in 1911, when A. L. Thompson, as a graduate student, kept accounts on five New York farms. Since 1912 the work has been carried on in coöperation with the Office of Farm Management. Data for two years, 1912 and 1913, were published as Cornell Bulletin 377. The results of the six years 1914 to 1919 will soon be published. Accounts are now being kept on thirty to forty farms in various parts of New York State.

As a by-product of this work, a study was made of farm layout. Maps of the cost account farms were used in this investigation, the results of which are published as Cornell Memoir 34.

2. *Farm Management Surveys.*—Farm management surveys were the first investigational work of the department and they have continued to be one of the most important lines of work. After ten years, re-surveys of Tompkins and Livingston counties were made in 1917 and in 1918. Because of war conditions only one of the four townships included in the 1907 survey of Tompkins County was covered in 1917. In this township, Dryden, two hundred and fifty records were obtained. In Livingston County seven hundred and twenty-four records were obtained in the same townships covered ten years before. In addition to the record of a year's business, data on farm population, farm living conditions and changes in ownership during the ten-year period were obtained in each of these regions.

Repeated annual surveys have been made in a fruit region in Niagara County, New York, from 1913 to 1920, inclusive. From seventy to one hundred and seventy-eight records have been taken each year and a total of nine hundred and sixty records in the eight years.

Yields of fruit by varieties have been obtained for several years as well as the usual business record.

Altogether, up to the present time, seven thousand six hundred and thirty-four records of farm business operations for a year have been taken by this department in various counties of the State.

3. *Economic Studies of Dairying in Broome and Herkimer Counties, New York.*—Surveys have been made in two dairy regions of the State to study the economics of dairying. For the year ending May 1, 1915, one hundred and forty-nine records were obtained in Broome County, New York, and one hundred and sixty-three records for the year ending May 1, 1919, in Herkimer County, New York. Data were obtained so that the seasonal, the annual, the cow and the herd costs of milk production could be computed as well as the cost of growing heifers. Studies of feeding and the relation of weights of animals to various factors have been made. The results of the Broome County study will soon be available as a Cornell Memoir. The Herkimer County study is practically complete and will soon be submitted for publication.

4. *Economic Studies of Production of Canning Crops in New York.*—This investigation includes studies of the cost of production and factors affecting the economical production of the important canning crops—peas, tomatoes, sweet corn, string beans and Lima beans. Data were obtained by the survey and account methods in the important producing areas of the State.

Peas, 3 areas	53 accounts	209 records
Tomatoes, 3 areas	26 accounts	107 records
Sweet corn, 3 areas	11 accounts	23 records
String beans	3 accounts	
Lima beans	4 accounts	

The results of this investigation are complete and will soon be submitted for publication.

5. *Economic Study of Farm Tractors in New York.*—This investigation includes a study of costs of tractor operation and the effects of use of tractors on farming. Detailed records were obtained by the survey method from eighty-seven farmers in a general farming and a fruit-growing region. In addition, three hundred and ten replies were received from about two thousand questionnaires sent out by mail to tractor owners in various parts of the State. The results of this study will soon be available as Cornell Bulletin 405.

6. *Price Studies.*—The investigations of prices include studies of the movements of prices of agricultural and other products, price

cycles, the relation of agricultural prices to industrial and business conditions and the secular trend of prices. Some of the results of these studies are now available as United States Department of Agriculture Bulletin 999.

A study is also being made of the relations of production to price of potatoes, apples, hay and other crops. From a study of the general trend of production and of the relation of production to price as shown by past experience formulæ have been worked out for forecasting the probable price with any given size of crop. Further study will be made of the elasticity of consumption of different crops and of the relation of this factor to price.

7. *Transportation Problems.*—Field work has just been begun on a study of the costs of operation and economic effects on farming of farm motor trucks. Several thousand questionnaires have been sent to truck owners in various parts of the State. In addition detailed records of costs and effects of farm motor trucks are being obtained in Broome County, New York.

A beginning has been made in the study of the problems of railroad transportation as they affect agriculture. One man is devoting his entire time to this subject.

8. *Movement of Farm Population.*—In this investigation surveys were made in two regions of the State to study the movement of farm population, about eighty records being obtained in each region. Use was also made of data on farm population obtained in the Farm Management surveys of Tompkins and Livingston counties. The results of this study are complete and will probably be published soon.

9. *Farm Labor.*—A survey was made of farm labor in a general farming region of Seneca County, New York. Data were obtained on costs and hours of the labor of each person employed on the farms, as well as on the personal history and financial condition of each worker.

10. *Marketing.*—Coöperative organizations of farmers for buying and selling have been developing rapidly in New York. Up to the present time the greater part of the marketing work has been a study of these marketing organizations. Some work has also been done in assisting in the formation of coöperative marketing associations and in helping to shape their policies.

11. *Farm Finance.*—Field work will soon begin on an investigation of the farm credit situation in New York State. It is planned to obtain information as to the present sources, the availability and the costs of farm credit.

12. *Cost of Living in a Small Factory Town.*—This study was undertaken to determine the economic advantages of the small "farm" as a home for persons engaged in industry. Living costs and other factors were ascertained for employees of one factory living on such small "farms" and in town. The investigation has been completed and the results will soon be published.

Extension.

Extension work in farm management and in marketing has had a steady, healthy growth at Cornell. At present three men are giving their entire time to this work. Other members of the department are called upon for occasional meetings. The most important extension projects now being carried on are:

1. *Demonstration Schools.*—These are three- or five-day farm-management schools given in coöperation with some other department of the college.

2. *Single Community Meetings.*

3. *Farm Management Tours.*—The County Farm Bureau coöperating in this project organizes a group of thirty to fifty farmers to make an all-day automobile trip to farms in a neighboring region. The attempt is made to teach the fundamental principles of good farm organization through a trip to successful farms and a study of their organization and management. Although tried for the first time in New York, this year, these tours have been very successful and a considerable demand has arisen for them.

4. *Farm Accounting.*—Farm inventory books and single farm account books have been prepared by the department and sold at cost through the county farm bureaus to the farmers of the State. When requested assistance is given to groups of farmers to enable them to start, keep and summarize their farm accounts.

5. *Farm Management Reading Course.*—An advanced reading course in farm management, based on Warren's "Farm Management," has been prepared and is being offered to interested persons.

6. *Publicity Material.*—From time to time articles on timely farm management topics are furnished to the press through the extension office of the college.

7. *Correspondence.*

8. *Farm Management Service.*—In one county of the State an experiment has been tried in furnishing a farm management service for a group of coöperating farmers. Each of the coöperating farmers pays $10 for this service. The department agrees to furnish to each

farmer an accurate map of the farm layout, on tracing cloth, with six blueprints, a drawing of the floor plans of the farm barns, a study of the layout and buildings, with suggestions for improvement, and assistance in taking an inventory and starting simple farm accounts. A survey record of the past year's business is obtained from each farmer and suggestions for improving the business are made on the basis of this record. Although this project is only an experiment, it is believed that there will be a considerable demand for this rather intensive type of extension work.

9. *Marketing.*—During the past year assistance has been given to a large number of coöperative associations through informal conferences with managers and boards of directors.

10. *Marketing.*—Retail merchants' conferences.

W. I. MYERS.

CORNELL UNIVERSITY,
ITHACA, N. Y.

ONTARIO, CANADA.

The first farm business survey in Ontario was made in Caledon township, Peel County, in the fall of 1917. This small survey, covering 113 farms, was the first systematic effort made in Ontario to secure authoritative information and figures upon the farming industry as a business proposition.

In the spring of 1918 a much larger survey was made, covering 437 farms in Oxford and 340 farms in Dundas. The sections surveyed were the foremost dairy districts of western and eastern Ontario, respectively. These surveys were continued in the spring of 1919; after that time the Dundas work was dropped, but the Oxford survey was continued until the spring of the present year. The work was extended still further in the spring of 1919 to cover the beef-raising industry of North Middlesex and mixed farming in parts of Wellington, Dufferin and Peel; 1920 saw a continuation of the above surveys, together with a special investigation in York County into the cost of producing milk for the Toronto market. An initial survey of the apple-growing and mixed-farming area of Durham County was undertaken in the same spring. Work was also commenced upon the cost of producing tomatoes for market in the Niagara district, and later upon a complete survey of 178 fruit farms in the same section.

This year's work has been even more extensive than that of previous years. The Oxford, Middlesex and Durham surveys have been continued, and a new investigation started into the peculiar type of mixed

farming followed in Kent County in the western peninsula. Much work has also been done upon the cost of beef production in Western Ontario, in relation to freight rates, and the findings of this investigation were recently presented before the Railway Commission. Reports upon the results of all these surveys are already in print or will be issued shortly.

An important branch of the work of the department is the introduction of a system of cost accounts. Representative farmers in Oxford, Dufferin and Durham, numbering in all about 75, are keeping full accounts of everything connected with the farm business under the personal direction of the department's specialist in cost accounting. This work is expected to bring out some extremely interesting and valuable facts and figures, and at the same time to be of great benefit to the farmers engaged in it.

Another undertaking which is about to be embarked upon is the investigation of markets, marketing conditions, and coöperative enterprises. Under present conditions there is a very great demand for work along these lines, and this branch is expected to develop as rapidly as has the farm survey proper.

H. C. Mason.

Ontario Agricultural College,
Guelph, Canada.

REPORT OF THE EXTENSION COMMITTEE OF THE FARM ECONOMIC ASSOCIATION.

The committee decided to make an analysis of the farm management extension activities for the past year. Such a report seemed to follow logically the questionnaire sent to agricultural extension leaders by the Extension Committee of last year asking the ways in which effective farm management extension work could be accomplished.

This analysis is based upon the monthly and annual reports of the farm management demonstrators and other extension workers. The main activities are listed as follows.

1. Eight hundred and ninety county agents report the distribution of farm acount books in their counties. The reports from the farm management demonstrators in the northern and western states show the distribution of over 225,000 farm account books for use during 1920. Also, a number of southern states distributed a large number of account books. Other agencies such as banks and coöperative farmers' organizations have been instrumental in distributing the account books prepared by the state agricultural colleges. These facts are significant only in so far as they show that wide distribution of simple and practical farm account books has been secured throughout practically all states of the Union. This wide dissemination of farm account books in many states has practically eliminated the distribution of other types of farm account books. A great impetus has been given farm accounting by income tax legislation, which has resulted in a demand for farm account record books and for information in farm accounting.

2. No adequate report is available showing the extent to which farm records are kept and summarized as many books are kept without assistance. However, 451 county agents report assisting farmers to summarize 13,872 accounts. In addition the farm management extension workers have assisted is summarizing many records. Five hundred and eleven county agents report 30,255 farm records summarized to their knowledge. It is known that many county agents assisted with this work but made no mention of it in their annual reports. The plan of work in many states includes summarizing and analyzing at least a few records in a county as a means of helping county agents to recognize the most important economic questions

relating to agriculture and to provide local demonstration material. The number of records reported summarized were from the account books distributed for the year 1919.

3. A number of states have held schools of instruction in farm accounting, cost acounting and other agricultural economic questions for county agents and other leaders in sectional or state meetings of county agents. Reports of such schools indicate that they have proved a potent means of giving the county agents a clear understanding of the aims of farm management. This type of work is especially desirable in many states due to the continually changing personnel of the county agent forces.

4. Fifteen states report holding approximately 500 farm management schools of instruction for groups of farmers. By "schools" is meant the assembling of groups of farmers to work out problems pertaining to their own farm operations. The school method of instruction has been adapted especially to teaching the keeping of farm accounts. Most of these schools consisted in part of having a group of farmers go through the process of entering a typical farm record in a blank record book as a means of teaching them to keep, summarize and analyze the record of their own farm business. Such a record offers a good basis for discussing factors having to do with the success of farming. The "school method of instruction" has proved popular because it affords an opportunity of extending the work to a large number of farmers; it is an effective method of teaching the farmers to keep their own records; and it is a type of work which county agents, agricultural high school teachers and other can duplicate. With the tremendous growth of farm bureau work and interest in agricultural economics it is important that the farm management extension work be developed in a way that will enable the county agents and other leaders to conduct much of the work without the immediate assistance of the farm management extension specialist. In connection with the instruction in record keeping there is an increasing tendency to follow up definitely records started with farmers as a means of securing local demonstration material to be used as a means of demonstrating the best farm organization and management under given conditions. Several states are drawing up definite projects with county farm bureau associations arranging for the completion of definite farm management demonstration work in a specific county. This work in the main contemplates the summarizing of general farm accounts or cost accounts for local demonstration use for meetings, publicity, or farm tours.

5. Reports from a total of 35 states show that approximately 1500 general meetings have been held with groups of farmers for the purpose of teaching farm management principles and to demonstrate the effect of certain factors on the farm earnings. Among the more important factors emphasized are the choice of farm enterprises, the size of business, the yield and quality of crops, the amount and quality of livestock, economical disposition of feeds, the farm layout, the means of securing efficient use of man and horse labor, and the use and distribution of capital. Also much attention is given to presenting material in a way which enabled county agents and other leaders to use the material throughout the year. In many states this work is handicapped from lack of adequate investigational data.

6. Assistance in enterprise cost accounting work has been given in most of the states conducting farm management extension work. After interest has been aroused in the study of the farm business many men wish to make a more detailed study of the most important enterprises in their farm business. This promises to be one of the best means of helping farmers to analyze their business in a way that will help them determine means of securing more efficient production. Much of the public interest in this phase of work may be due to the agitation resulting from price fixing activities during the war. However, the information secured either from the cost accounting records or from meetings where cost of producing a product is determined through estimate by a group of farmers is accomplishing much in bringing about a right understanding concerning the relationship of cost of production to price. The greatest value to the farmer resulting from enterprise records is in showing how production may be accomplished more efficiently.

7. A number of states have prepared exhibits which have been put on at both state and county fairs. One of the most successful exhibits has been the model of a farm showing desirable characteristics in the layout and organization of the farm. An exhibit of this type has been used in ten states. The success of this exhibit undoubtedly was due to its realistic appearance resulting from showing the growing crops and the clearness with which it depicted desirable farm lay-out and practices. The model of a farm exhibit has proved an excellent means of securing the coöperation of specialists in the subject matter departments in working out a plan of farm organization adapted to a region. Also, where this exhibit has been extended to county fairs it has been a means of getting the county agent to think through the desirable type of farm organization for the region.

The activities enumerated above indicate the most important activities carried on during the past year. Other activities which have been started in a small way and which give promise of further extension include:

1. Arranging farm management tours as a means of demonstrating good farm practices. The farms visited on such tours are selected to demonstrate definite farm management principles and the records kept on the farms form the basis of the demonstration especially if it pertains to the profitableness of farming.

2. Work on improving tenancy contracts through both meetings and work with individuals. This work has included the preparation of lease forms adapted to a region and demonstration meetings with farmers for the purpose of showing desirable provisions to include in leases, and promoting the spirit of coöperation between landlords and tenants.

3. The formation of farm management clubs with groups of boys of high school age or younger men on the farms for the purpose of keeping, summarizing and analyzing the records on their home farms and studying the means of securing more efficient farm production.

4. Assistance to agricultural high schools in outlining a method of instruction and plan of work where farm management is made the home project of the student.

5. Planning a simple outline for teaching the fundamentals of farm accounting to be used in grade school instruction in rural communities.

Farm management extension work together with the investigational work has been a potent factor in building county and community farm bureau programs of work along sound economic lines.

In conclusion, it should be stated that farm management extension work, including the analysis of individual farm records, the schools for instruction in farm accounting and farm business analysis, the subjects discussed in general meetings, the analysis of enterprise cost records, the preparation of exhibit material, the selection of demonstration field material, the improvement in tenancy conditions and the preparation of subject matter for club and school work all emphasize the need of more and continued investigation and the preparation of investigational material in form suitable for extension teaching.

Investigational data coming into the hands of extension workers and more especially to county agents is in a fragmentary state. There is a need of assembling the facts as a definite guide for practical farm organization and management. Due to the constantly changing economic conditions, investigational work needs to be continued and

its interpretation for extension teaching should be kept up to date. This need is the result of the early farm management extension activities which were devoted primarily to work with individual farmers, helping them to analyze and study their business. This type of work helped develop a greater public interest in the economic side of farming and a natural result is the call for more information based on actual investigation.

H. C. M. CASE,
Chairman.

TENTATIVE PROGRAM, 1921, AMERICAN FARM ECONOMIC ASSOCIATION. TWELFTH ANNUAL MEETING.

WILLIAM PENN HOTEL, PITTSBURGH, PA., DECEMBER 29, 30, 31.

1. To what extent are the Farmers' Credit Needs being Adequately Met?
   Discussion, E. S. Bayard, Editor, *National Stockman and Farmer.*
2. The Farmer's Share of the Social Dividend and His Prospects for the Future.
   Paper, Professor David Friday, Pres. Michigan Agricultural College.
   Discussion, L. C. Gray.
3. The Outlook for Coöperative Marketing.
   Paper, Prof. E. G. Nourse, Iowa State College.
   Discussion, Theodore Macklin, University of Wisconsin, and J. R. Howard, Pres. American Farm Bureau Federation.
4. Short Time Credit Needs in Producing and Marketing Farm Products.
   Paper, Dr. Ivan Wright, University of Illinois.
   Discussion, Representative of Iowa Credit Association.
5. President's Address:
   Research in Agricultural Economics and Farm Management, W. F. Handschin, University of Illinois.
6. Recent Tendencies in Land Tenure and Their Significance.
   Paper, Geo. Werwein, University of Wisconsin.
   Discussion, C. L. Stewart, Office Farm Management and Farm Economics.
7. Replanning the Farm Layout.
   Paper, W. I. Myers, Cornell University.
   Discussion, R. F. Taber, Ohio State University.

8. Managing a Farm for Maximum Profits.
   Paper, C. L. Meharry, Tolono, Illinois.
   Discussion, O. G. Lloyd, Purdue University.
9. The Importance of Accounting Investigations in the Production and Distribution of Farm Products.
   Paper, H. T. Scovill, University of Illinois.
   Discussion, Andrew Boss, University of Minnesota, and H. E. Erdman, Ohio State University.
10. The Influence of the Increase in Freight Rates on the Types of Farming.
   Paper, B. H. Hibbard, University of Wisconsin.
   Discussion, A. E. Cance, Massachusetts Agricultural College.
11. The Influence of Foreign Markets and Competition on Farm Management in the United States.
   Paper, G. F. Warren, Cornell University.
12. Some Recent Price Movements and Their Significance to Agriculture.
   Paper, C. E. Ladd, Cornell University.
   Discussion, H. A. Wallace, Editor, *Wallace's Farmer,* and Asher Hobson, Columbia University.
13. Economic Causes and Results of Movements of Rural Population in the United States.
   Paper, J. G. Thompson, Washington, D. C.
   Discussion, A. J. Dadisman, West Virginia University.
14. Business Meeting and Reports of Standing Committees.

FARM ECONOMIC NEWS ITEMS.

Prof. G. F. Warren and Mr. W. F. Callendar sailed for England about September 12. This trip is being made in behalf of the U. S. Department of Agriculture. It is their plan to visit the countries of western and central Europe. Government officials, representatives of chambers of commerce at the capitals and principal ports of entry will be interviewed with a view to ascertaining the present prospective crop and market situation. They will endeavor to become acquainted with sources of information and will arrange for the steady flow of crop and market reports to the department. It is expected that they will return to the United States about the first of January, and recommendations will then be made with respect to the department's program of work in foreign countries.

Prof. C. E. Allred, of the University of Tennessee, will be absent from that institution during the first semester of the present college year, making a special study of negro tenancy on the farms in the central and western portions of that State.

Mr. W. W. Fetro, of the Kansas Experiment Station, has resigned to take graduate work at the University of Wisconsin. Mr. J. H. Moyer, a recent graduate of the Kansas State Agricultural College, has been appointed to fill this vacancy.

Mr. F. A. Buechel, instructor in statistics in the University of Wisconsin and formerly vice-president and head of the Economics Department of Madison Normal, South Dakota, has accepted a place in the Agricultural and Mechanical College of Texas as Professor of Agricultural Administration. Professor Buechel expects to receive his doctor's degree from the University of Wisconsin the coming summer. The title of his thesis is "Relation of Rent to Land Values in Theory and Practice."

By a recent act of the Connecticut General Assembly a State Bureau of Markets has been created. The State Market Information Service, which was established four years ago under the direction of the Extension Service of the Connecticut Agricultural College, and which has been conducted by them since that time, has been transferred to the new Bureau of Markets. G. M. Stock and B. P. Storrs, market re-

porters, have also been transferred from the college staff to the State Bureau of Markets.

The three years' study of the cost of milk production in Connecticut being conducted by Professor A. W. Manchester, assisted by Walter T. Clark, is half completed. This study is in coöperation with farmers who are visited weekly by Mr. Clark. Each farmer maintains complete cost records. The purpose is to give New England farmers more definite information with regard to what constitute the most efficient methods of running a dairy farm. Special attention is being devoted to determining which roughages are the cheapest sources of nutrition on various types of farms.

A five-year efficiency study of a community of twenty-five farms in Choctaw County was begun recently by J. N. Lipscomb, of Mississippi. Records have been taken of the 1920 business on these farms, and the 1921 business will be taken about the first of the coming year. A farm management record book will be furnished each farmer at the beginning of the year and assistance will be given him in keeping his records properly. Each enterprise will be carefully studied and suggestions made for improvement, where better methods are positively known. A rough sketch of the farm will be made, with an accompanying history of crops and yields for several years past. Reorganization of these farms will begin in 1922 and will be guided by a study of the profitable and unprofitable enterprises on the farm for each succeeding year. This work is under the supervision of the farm management department and in coöperation with the County Agricultural Agent of Choctaw County. Other branches of the Experiment Station and Extension Department will be consulted and asked for cooperation from time to time.

A brief study of the cost of producing truck crops in Copiah County, Mississippi, was made this summer and is now in the hands of the printer. This circular (No. 39) shows the relative costs and profits in growing truck crops in that section for 1921.

Mr. J. H. Shaffer, who graduated at West Virginia University in June with the degree of B.S.Agr., has accepted a position as assistant in the Department of Farm Economics.

Mr. John Lee Coulter, dean of the College of Agriculture and director of the Experiment Station, has resigned to accept a position as president of the North Dakota Agricultural College. His successor has not been selected.

Mr. A. J. Dadisman, of the University of West Virginia, is taking graduate work at Cornell University this semester.

Mr. Ernest C. Young was recently elected assistant professor in farm management and rural economics at Purdue University. Professor Young gets his Ph.D. from Cornell University this September. His major was taken in Farm Management and his minor work in Animal Husbandry and Finance. Professor Young was born and reared on a farm near Grove City, Pennsylvania. After graduating from Grove City College in 1914 he taught Physics and Chemistry in high school for two years and then entered Cornell University for work in Agriculture. With the exception of one year in the Army, Professor Young spent all his time from 1917 to 1921 doing graduate work and assisting in Farm Management. While instructor in Farm Management he had charge of the extension work in Farm Accounting. His doctor's thesis is entitled "The Movement of Farm Population."

M. H. Overton has been transferred from extension to assistant in Farm Management Station work. Mr. Overton graduated from Purdue in 1917. He spent one year as county agent in Decatur County, Indiana, and since that time has been assisting in extension and station work.

Mr. M. P. Rasmussen, formerly farm management demonstrator in Vermont, has resigned from that position to accept one as extension instructor in the Department of Agricultural Economics and Farm Management at Cornell University.

Prof. G. P. Scoville and Messrs. F. A. Pearson and H. S. Gabriel, of the Department of Agricultural Economics and Farm Management at Cornell University are taking graduate work in economics at Harvard University during the current year.

Mr. B. A. Wallace, of the University of Minnesota, has been appointed Extension Specialist in Marketing in the College of Agriculture of Ohio State University.

Mr. Chas. Lively, of the University of Minnesota, has been appointed Assistant Professor of Rural Sociology in the College of Agriculture, Ohio State University.

Mr. L. O. Lantis, Assistant Professor in Rural Sociology, College of Agriculture, Ohio State University, has resigned to take up graduate work and teaching in the same field at the University of Minnesota.

Mr. Z. B. Wallin has been added to the teaching staff of the Department of Rural Economics, Ohio State University, for the coming year during the absence of Mr. H. E. Erdman, who is on a leave of absence working with the Bureau of Markets at Washington.

On Tuesday, September 13, approximately 150 farmers, agricultural extension men and others were present on a farm management tour conducted by the Farm Bureau of Woodford County, Illinois. In this county the Farm Bureau, in coöperation with the Department of Farm Organization and Management of the University of Illinois, has been carrying on for the past five years a simple farm accounting project. The information disclosed by these accounts not only served as a basis for selecting the farms visited on this tour, but, in a larger sense, has been the basis for determining the various lines of work carried on by the county bureau. The tour provided opportunity for demonstrating to the visiting farmers the constructive work the Farm Bureau has been doing, especially in farm accounting and farm organization, fertility maintenance, crop and live-stock improvement. Judging from the interest shown, it will do much toward stimulating renewed interest and enthusiasm, not only in Farm Management, but also in the whole Farm Bureau movement.

Mr. John A. Hopkins, Jr., has come to Iowa State College, Ames, Iowa, as Assistant Professor. He will teach farm management and accounting work. Prior to September 1 Mr. Hopkins assisted Professor T. N. Carver at Harvard.

Mr. C. W. Hammans, of the Iowa Experiment Station staff, began marketing work for the Agricultural Economics Section of the Extension Service August 1.

Mr. C. L. Benner, formerly instructor of Money and Banking at the University of Michigan, is now located at Iowa State College, Ames, Iowa, in charge of rural credits work. Mr. Benner arrived at Ames September 1.

Mr. A. L. Walker is in the Agricultural Economics Section of the Agricultural Extension Service, Ames, Iowa. Mr. Walker took his Bachelor's degree at Iowa State College last June, assuming his duties immediately following his graduation.

The American Farm Economic Association

CONSTITUTION.

ARTICLE I.

Name.—The name of the Association shall be The American Farm (Management) *Economic* Association.

ARTICLE II.

Object.—The object of this Association shall be to promote the investigation and teaching of farm management *and other economic questions pertaining to agriculture.*

ARTICLE III.

Membership.—The membership shall consist of persons interested in Farm Management and Farm Economics.

ARTICLE IV.

Organization.—The officers shall be a President, Vice-president, and a Secretary-Treasurer, who shall be elected for one year and who shall serve until their successors shall qualify.

The Executive Committee shall consist of the officers, and shall have the power of appointing committees, selecting time and places of meeting, and of bringing to the attention of the members any matter which in their judgment should be considered by the Association.

There shall be three standing committees appointed annually by the Executive Committee. One of these committees shall consider the lines of investigation best adapted to the needs of the work of farm (management) *economics* at the present time and shall suggest to various investigators plans of correlation and cooperation in the work. It shall be the duty of this committee to collect, as far as possible from investigators, the lines of work to be carried out each year. The second committee shall investigate the methods of lecture and laboratory work in farm (management) *economics* and make suggestions to the members of the Association and to colleges intending to organize courses in farm (management) *economics.* It shall be the duty of the third committee to report on extension work in farm (management) *economics.*

ARTICLE V.

Dues and Subscription.—The rate for members of the Association shall be two dollars per year. This amount is divided as follows: Annual dues, fifty cents, and annual subscription to the JOURNAL OF FARM ECONOMICS, one dollar and fifty cents. The associate membership was abolished at the tenth annual meeting, November, 1919.

ARTICLE VI.

Meetings.—There shall be held an annual meeting of the Association, the arrangements and program to be made by the Executive Committee. Notice of such meeting shall be mailed to each member at least four weeks in advance.

ARTICLE VII.

Amendments.—This constitution may be amended by a two-thirds vote of the members present at any annual meeting of the Association.